INTERNET 2 ®

Internet2 advanced applications are helping instructors develop new teaching techniques, enhancing the learning experience for students, and extending universities beyond their geographical boundaries. By bringing together learning communities and removing barriers to information retrieval and learning resources—Internet2 applications are changing the way we learn and teach.

Undergraduate Education

Distance Learning

Collaboration Tools

Remote Instrumentation

Undergraduate Education

Screenwriting Course
Bradley University

http://gcc.bradley.edu/slane/

In order to be competitive in the entertainment industry job market, university graduates need to know how the industry works from top to bottom. But, how do you expose students to agents, writers, directors, and producers? And, how do you do it from Peoria, Illinois? Jeffrey Huberman, Dean of the Slane College of Communications and Fine Arts at Bradley University, explains, "We provide students with an excellent education in many aspects of the entertainment industry, but we didn't offer a course in screenwriting. We thought Internet2 advanced network technology could provide a solution." Huberman collaborated with California State University, Los Angeles (CSLA) to create a screenwriting course, which enrolled students at both Bradley and CSLA. The course included guest lectures by agents, screenwriters, and production executives—brought live to the classroom via interactive videoconferencing. Through the use of advanced networking technology, students learned all the steps involved in bringing a project to production from professionals who are successfully managing careers in Hollywood.

Distance Learning

Singapore–MIT Alliance
Massachusetts Institute of Technology
National University of Singapore
Nanyang Technological University

http://web.mit.edu/sma/

The Singapore-MIT Alliance (SMA) is an advanced engineering degree program that combines an innovative distance-learning component with traditional on-campus learning. SMA is a highly-collaborative effort that provides thousands of students with courses using the most technologically-advanced distance learning facilities available. SMA course offerings use a live lecture format delivered via videoconferencing with supplemental data content provided over an application sharing link. Vijay Kumar, Assistant Provost & Director of Academic Computing at MIT, comments, "Our goal is to improve the educational experience and meet the lifelong learning needs of our students while simultaneously expanding MIT's reach and influence by providing educational offerings to a global audience."

Integrated Seminar in Nursing Informatics
Committee on Institutional Cooperation

http://www.cic.uiuc.edu/programs/CICCourseShare/

The Committee on Institutional Cooperation (CIC), a consortium of 12 research universities, piloted a course in nursing informatics for four participating institutions: University of Iowa, University of Wisconsin-Madison, Indiana University, and University of Michigan. This innovative course used the Internet2 Commons H.323 Videoconferencing Service to deliver live, interactive lectures to students. The course was supplemented by an on-demand video archive and web-based conferencing and course management. The four participating universities used CIC's CourseShare administrative system, which allows students to register and pay tuition, receive grades and credit for specialized inter-institutional courses all at their home campuses. Connie Delaney, professor at the College of Nursing at the University of Iowa, stresses, "This collaboration provides creative strategies that leverage the scarcity of nursing informatics faculty and at the same time offers students participation in a wealth of research projects and innovations across multiple institutions."
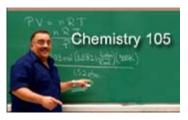
Collaboration Tools

MediaVision and Chemistry 105
Case Western Reserve University

http://www.cwru.edu/its/itac/mediavision/

MediaVision Courseware is an advanced instructional technology project that enhances existing teaching methods with new multimedia learning content. For Chemistry 105—a large, lecture-style undergrad chemistry course—MediaVision provides students with video recordings of lectures, review sessions, and homework assistance; MP3 audio recordings; and an on-line textbook. Lectures and review sessions are recorded; encoded for network distribution; indexed and "published" to the web where they can be keyword searched by students. Network-based delivery extends access to the multimedia materials both on and off campus, which is especially critical to commuting students. MediaVision Courseware illustrates how technology can improve the educational outcome as well. During the first semester of Chemistry 105 using the MediaVision Courseware, scores for the first two tests rose to an 81 average, from a previous average of 72.

Digital Anatomy
Stanford University
University of Wisconsin — La Crosse

http://havnet.stanford.edu/

When Stanford University medical students "dissect" an anatomical specimen, they zoom in, rotate it, dissect it, and even put it back together again. Remote Stereo Viewer (RSV) is an educational tool that allows medical educators and students to view 3D stereo anatomical interactive photographs on a workstation. Since an anatomical specimen can be viewed in various stages of dissection, the student can go back and forth between layers to better understand the complexity of the structure. The high-resolution 3D stereo images are stored on a server and then individually downloaded to a workstation on demand, requiring high-bandwidth transport at a minimum of 35 Mbps. RSV is used in a "virtual classroom" style setting that allows multiple, remote users to access digital anatomy datasets and collaboratively view and discuss a virtual dissection in real-time. Dr. Sakti Srivastava has been using this tool for over three years in the gross anatomy class at Stanford and comments, "When we conducted field trials to evaluate the usability and learning efficacy of the applications, we discovered that its simple, user-friendly interface and high quality images made it an attractive option for students. When RSV was used both as an introduction to a real dissection and as a refresher after the dissection had been completed, students self-rated themselves as having better learnt the concepts and details."

Remote Instrumentation

Remote Microscopy Course
University of Michigan
Lehigh University

http://emalwww.engin.umich.edu/

A Scanning Electron Microscope (SEM) at the University of Michigan (UM) plays a key role in courses taught at Lehigh University. Each year, the Lehigh Microscopy School attracts over 100 engineers and scientists who receive instruction in a wide variety of microscope techniques using SEMs and other state-of-the-art instruments. One of these instruments is the Philips XL30FEG SEM located in the Electron Microbeam Analysis Laboratory (EMAL) at UM. The Philips line of SEMs was one of the first to be completely computer-controlled, as opposed to the knob and switch "interfaces" on older instruments. Extending its usability via remote-control to an Internet-wide audience resulted from the work of Dr. John Mansfield and collaborators. Mansfield, Manager of EMAL, explains, "Advanced networks provide the bandwidth and performance required to control the SEM in real-time from anywhere in the world. Remote access extends the use of this extremely costly resource for instructional and collaborative research purposes."